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A Research on the Technical Work in CET-4&6 Network Test

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Abstract

CET-4&6 network test has been launched across the country, the technical security work of which has rather comprehensive content of great importance and responsibilities, and also determines whether the network test will be successful or not. Strictly following the requirements of the Test Committee, the technical staff should pay great attention to the scientific configuration for both hardware and software, the timely check for test arrangement, adjustments before test; the required operation process of the network test software, and the summary and training of technical issues that candidates need to care.

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Since 2004, one of the key points for the college English test reform is to change the manual test pattern to Internet-based test pattern [1]. At present, our country has developed and established our own large-scale exam database for college English test, including listening, reading, grammar, comprehension and so on. A college English test system with Chinese characteristics has been established gradually. The Internet-based test for CET4&6 has been launched to the whole country since 2008. We believe that, in the near future, the CET Internet-based test will be on the same stage with TOEFL, which means that all the examinees in the world can take the test at the same time period, so that the whole world will become a huge worldwide examine hall without fence, and the procedure of the test will be efficient and more effective [2]. Our college has held the Internet-based test for CET-4 three times. For these Internet-based tests, I feel greatly honored to provide technical supports for these tests. During the process I came to realize that great pressure, complexity and responsibility of the task. Therefore, some experiences and

reflections are presented hereby in this research, which can be helpful to promote the progress of Internet-based test.

1. Technique Requirements For Internet-Based Tests

Based on the National College English Test Website (<http://www.ccets.org/>), the Internet-based test covers following procedures: examination site application, examination site investigation, registration and payment,

U-Key acquisition, system installation, VPN setup, getting account and password, downloading admission certificate, web testing, examination sites arrangement, data downloading, formal test, data uploading and so on (taking the Internet-based test in Oct, 2009 as an example) [3]. Among these procedures, the Office of Academic Affairs is in charge of test organization, and the network technicians are responsible for techniques, including:

- 1) Providing technical parameters for the examination site application;
- 2) Receiving the U-Key issued by the Xi Pu Company, including he VPN equipments and the dongles;
- 3) Downloading and installing the test system;
- 4) Building VPN web platforms;
- 5) Acquiring the test server login address, account and password;
- 6) Getting familiar with all the operations and solutions for the problems during the test;
- 7) Training the examinees on the relevant operations, recording and equipments handling;
- 8) Downloading data from the test area server to get prepared for the test;
- 9) Software operation and equipment maintenance during the formal test;
- 10) Uploading all the data of the examinees' answers.

Above all suggest that the techniques in the Internet-based test are very complicated and difficult, which are big challenges for the technician who is assigned to ensure the smooth progress of test in each test site by the National College English Test Committee.

2. Equipment Requirements For The Internet-Based Tests

Each test site should be equipped with the test district server (named as test center server since 2008), examination area server and the client terminals (the students' machine). Each examination site should be equipped the hardware and software according to the specific requirements of the Test Service Network. Besides, the problems below should be noted:

- 1) Each test site should prepare one alternative server, and 10% more student machines than basic needs;
- 2) Test server of famous brands with sole special use is recommended;
- 3) The System Backup should be well prepared, including the ASR Backup, Ghost Backup, discs backup, so that the system can easily be restored in the case of malfunction [4];
- 4) The server must be locked in the cabinet as well as using password protection. And the security of the dongles should not be ignored;
- 5) Legitimate operating system and patches should be installed for both the server and the student machines;
- 6) Mainstream Antivirus Software and Firewall should be installed, and the VDF should be updated timely. The KSOS 6.0 is used in our site and it runs normally;
- 7) IP rules, the program accessing rules, the ARP defense rules etc. of Firewall should be configured carefully. 360 Safety Guards with ARP function or a specialized ARP Firewall should be installed for the Firewall without the function of ARP.

For the compatibility of the Internet-based test system has been increasingly improved, turning off the restore card, Norton Antivirus Software and AVG-SPYWARE Trojan Software are no longer officially recommended since 2009. In addition, 2009 edition software interfaces look more simple and aesthetic. In terms of the CET4 tests in December 2009 and June 2010, few problems were reported, which were mostly artificial, accidental and regional problems ones with slight influence.

3. Operation Requirements For The Internet-Based Tests

On 6th and 13th of December, 2008, 54 pilot colleges all over the country participated in the national Internet-based pretest, it was just a drill organized in the same procedure as the formal test in December 21st. Here, I take the rehearsing test on December 13th 2008 and formal test in December 21st as examples.

3.1. Training requirements for the technical staffs

The two technical staffs in this test site implement the exam process and solve the relevant problems. First of all, the technical staffs should have the ability to operate computers, and then they will be trained by the Xi Pu Company. The technical staffs also must be familiar with The technical documentations like the User Manual of the Examination Hall Server, the User Manual of the Test Site, the User Manual of the Client Side, the Operating Instructions for the Examinees' Second Login, and the Detailed Instructions for the Examinee to Change the Computer and so on. In the data center that the Since Xi Pu Company set up national data center on December 3rd, they organized the examination halls arranging with analog data for each site every day, so that the technical staffs could do some self-exercises. Because there were no on-the-spot technical supporters from the company, on December 13th rehearsing test and the December 21st formal test, so the technical staffs must be familiar with the operation. If any problems occurred, they could contact the technical supporters. In order not to miss the preparation for the test, the 2 technical staffs and 2 invigilators must strictly adhere to the specified time of every procedure in the Test Plan. During the test, they should strictly comply with the confidential process to download test papers and collect data of answers.

3.2. The technical staffs should learn the latest technical information timely

Since December 3rd, the technical staffs could log onto the CET Website with their account numbers to browse the relevant information of the test. The account number is provided by the technicians of the Xi Pu Company directly. And the website provided operation manuals and courseware for the test center, test site, and client terminal; the arrangements for the rehearsing test and formal test; the test organization and the requirements for examinees. The technical staffs should keep up to date with the latest information and requirements on the test server, the main technical requirements involved are:

- 1) The test system should be newly installed before the rehearsing test, and the IP address, and the newly assigned account number and password started to use since the dawn of December 12th ;
- 2) To ensure the confidentiality of the formal test, new password protection were applied. The technical staffs must log on the website to download the package again and install it before 19th of the December. The package could update the server of the examination site and the client side software on the basis of the rehearsing test in 13th December;
- 3) The server IP address and alternative IP address were provided before the formal test on 21st together with the new account number and password of the examination site. The network of the formal test is the special line provided by the Education Network, and the alternative server network in provided

jointly by the Telecommunication, Netcom and Education Network. The exam college chose the server according to the real network situation, to gain the largest data download and the fastest upload rate;

4) Since December 16th, examinees of every examination site can log on the website to print the admission certificate. Considering that some errors may occur in network of some colleges, the download and print of admission certificates can be dealt reasonably according to the situation.

3.3. Requirements for the information of the examinees

Each college should select 100 examinees at random from those who have applied the written examination of CET4. The basic information of the examinees, including name, gender, faculty, major, student number, ID number, photo and so on, should be submit online. The photo should be named after the ID number, JPG format, with the picture element of 150 in wide and 200 in height. If the basic information failed to submit, the analog information of the student could also be used. The basic information of every college must be submitted during the 1st and 10th in December.

4. Technical Problems That The Examinees Must Pay Attention To

4.1. Preparations before the test

Since scores of the CET Internet-based test and the written test have the same efficacy, so the examinees should pay attention to the relevant technical problems of the Internet-based test. After the test center, namely the college, submitted the examinees' basic information through the Information Management System of the examination site, the examinees can register and log on through the Personal Information Management System. After registering successfully with the password for formal exam, the examinees can compare their basic information with the version submitted by the college. The examinees should remember login password for the formal test. Once they forget their passwords, they can use the Forgetting Password function on the login webpage to get their passwords back, or they can ask the relevant department to check their passwords.

4.2. The process of the test

The examinee should sit correctly on the seat number displaying on the screen of test computer corresponding to the same number on the certificate. Having seated, the examinees will take the pre-test training, the reciting training and analog recording. In the formal test of December 21st, 2008, all the examinees must input their exam card number and click the LOG button to enter the test system before 8:45. Those who don't log on before 8:45 will be regarded as absentees. During 8:45 to 9:00, the examinees should test the headset test and mike, and adjust the volume. The examinees can only started to test after they confirmed their basic information and approved the test rules. Otherwise, they would be noted as "missed the exam", and then be regarded as absentees.

In the formal test on 21st, 9:00~11:00 is regarded as the formal exam period, and the time limit for answering each part has set up in the system, therefore the examinees had to answer the questions in the designated order. If the computer would break down during the exam, the examinees should raise their hands to ask the invigilators to change seat. Irrelevant operations to the exam were forbidden, such as restart the test computer, cut the network, thrust or extract the headset, thrust any mobile HDD, maliciously operate the keyboard and so on. When the exam was finished, the examinees should finish the questionnaire and click the SUBMITTING PAPER button. Only seeing the notice for leave, the

examinees can then leave. If the examinees turned off or restarted the computer before leaving the examination hall, their scores would be directly affect.

4.3. Do's and don'ts for answering the Reciting Part

When reciting, the examinees should speak fluently and clearly, at normal speed, in moderate volume, with proper pauses and rhythms, avoiding disruptions. Attention should be paid to the following points:

1) Adjust the position of the mike to 2~3 cm away from the mouth. To guarantee the recording quality, the sound should be kept in the best range, namely, the yellow region. If the sound is too loud or the mike is too close to mouth, the recording volume sign will enter the red region, resulting in the distortion; on the contrary, if the sound is too low or the mike is too far away from the mouth, the volume will stay in the green area, the recording comes out invalid.

2) After the recording was played twice, the bell rang to alarm the start of recording. If the examinees didn't click the START RECORDING button, the system would begin to record automatically in 5 seconds. If the REDO or SUBMITTING button is not clicked within 5 seconds after recording, the system would automatically enter the next step, too. There was only one chance to reread the sentence, so the examinees should try to recite well at one time;

3) Reciting in advance was not allowed. The examinees can only recite after pressing the START RECORDING button, or the recording will be incomplete. The repeating time for each sentence was confined in 12 seconds, with progress bar and countdown display on the screen. The reciting speed should be normal, neither too slow nor too fast, without long pauses in the sentences;

4) Each sentence was played twice and one chance was given to recite. If examinee repeated the whole sentence or a certain word, the score would be affected. For example, the origin sentence is "My name is Ling Ling." It can't be repeated as "My name name is Ling Ling";

5) Disturbing sounds should be avoided during recording, such as the sounds of coughing, sighing, blowing, turning the mike, knocking the table and so on. Or the score will be affected. During recording, keeping hands on the mike can disturb recording, too.

4.4. Strategies for the examinees to deal with the question patterns and content of the Internet-based test

Seeing from the question pattern and content of the Internet-based test, the percentage of listening has increased to 70%, while the reading decreased to 30%. The Listening part includes Multiple-choice, Blank filling, Dictation, Reciting, Writing and so on. As suggest that the new CET 4 focus on testing the examinees' comprehensive capacity including listening, speaking, reading and writing [5]. Secondly, introducing the oral test to written test shows that the test emphasizes more on examinees' oral communication capacity. The Reciting part in the CET-4 aims to test the examinees' comprehensive oral capacity including intonation, stress, tone, speaking speed, fluency and so on. We can see that the essence of the CET Internet-based test is to investigate the comprehensive capacity, especially listening and speaking abilities. The examinees are required to learn with computer and network software to practice listening and speaking, and do model tests to improve their ability to use computer, adaptability and information literacy. At present, the Test Service Website provides the examinees with Flash training videos in which the whole process of the test is demonstrated. It also provides online reciting practice. The test process and interface are exactly the same as the formal test, and the examinees can exercise repeatedly.

5. The Technical Operation Procedures For The Formal Test

The operation procedures are decided by the program of the Internet-based test, and grasped familiarly by the technical staffs. In the process, it should be noticed that, if the surface can't be refreshed at once after clicking a certain button because of the slow operating speed, by no means should the button be frequently clicked, because this would make the program too busy and then stop responding. The procedures of the Internet-based test in December 21st, 2008 are listed as follows:

5.1. Pre-test operation of the test center server

Step 1: Input the account number and password to login the server of the test center;

Step 2: Click the TEST button;

Step 3: Click the INITIALIZE PROJECT button (starting at 8:00, Dec. 15th);

Step 4: Click the SET UP FTP SERVER button;

Step 5: Click the DOWNLOAD LAYOUT button (from 8:30, Dec. 15th);

Step 6: Click the QUESTION BANK DOWNLOAD button (from 8:30, Dec. 15th);

Step 7: Click the KEY DOWNLOAD button (starting from 13:00, Dec. 20th).

5.2. Operation of the examination hall server during the test

The operation of the test site server is pretty like that of the online oral English test. It mainly covers connection establishment, examinee login, paper handout, starting recording, starting test, collecting answer sheet and ending up the test [6].

Step 1: Input the test site number to log on the test center server;

Step 2: Search the client terminal (Dec. 15th ~ 20th);

Step 3: Click the INFORMATION DOWNLOAD LAYOUT button (8:30, Dec. 15th);

Step 4: Choose the exam round;

Step 5: Click the QUESTION BANK DOWNLAOD button (8:30, Dec. 15th);

Step 6: Click the KEY DOWNLOAD button (starting from 13:00, Dec. 20th);

Step 7: Environment detection (Dec. 15th~20th);

Step 8: Equipment detection (Dec. 15th ~20th);

Step 9: Distribute papers (from 13:00, Dec. 15th ~20th);

Step 10: 15-minute the model test (can be skipped, Dec. 15th ~20th);

Step 11: 120-minute formal test (can be skipped, Dec. 15th ~20th);

Step 12: Set the seat (selective setting at the practice test, Dec. 15th ~20th);

Step 13: The formal test (begin at 7:00, Dec. 21st) includes:

a. Distribute the paper to the login surface (about 10 minutes). During this period, the do's and don'ts should be read, the training for pre-test and reciting part should be provided;

b. Examinees login (start at 8:00, for about 15 minutes);

c. Examinees detect the equipment (start at 8:45, for about 15 minutes);

d. Examinees answer the questions formally (from 9:00 to 11:00, lasting 120 minutes);

e. Fill in the questionnaire (begin at 11:00);

Step 14: Backup and restore database (11:30 on, Dec. 21st);

Step 15: Submit the test data (11:30, Dec. 21st).

5.3. After-test operation of the examination site server

- Step 1: Submit the data after the test (start from 11:30, Dec. 21st);
- Step 2: Submit the files after the test (start from 11:30, Dec. 21st);
- Step 3: Submit the questionnaires (start from 11:30, Dec. 21st).

6. Safety Techniques Of The Internet-Based Test

The CET Internet-based test needs to transmit great amount of data including the test paper and examinees' answers between the Examination Office and all examination sites, so any data leakage is not allowed. Therefore, to ensure the safe transmission of the data in CET Internet-based test, the methods of VPN Secure Channel and Encryption are established and employed at present. Since the VPN of the IP is based on the Internet server and other network servers, a specified data communication network can be established through the usage of private tunneling technology to emulate a specified PTP network in the public data network. At present, the VPN mainly employs the technologies including: tunneling, encryption and decryption, the key management, and the identity authentication for the user and equipment to ensure the information safety. The VPN for the Internet-based test consists of central gateway server, the VPN U-key, the Dongles for the test site and so on. The Test Committee provides a set of safety equipment for each examination site, including a Dongle, a VPN U-key, and a set of VRC Client Side Software. A specified technical staff should be responsible for all these equipment and take care of them properly.

7. Conclusion

Remembering that when relevant persons bravely proposed that the test pattern should reform and to Internet-based test can be employed, there was a heated debate. While they approved this proposal, many teachers had a lot of worries, including: is there such a huge network to test millions of examinees at the same time; how will the papers to be set; is it possible to test the examinees' listening and speaking ability online; how to mark the papers; is it a fair test; though it has feasibility, how far can it go and so on. Most of these worries, to a great extent, are raised by the suspicions of technology. But the success of several large-scale pilot tests is the best answer for these suspicions. Meanwhile, some regional technological problems still occur in the Internet-based test, the test software, the test organization and the technical training should be continually improved. At the same time, the Internet-based test requests higher requirements for the technical staffs:

- 1) The technical staffs should have rich knowledge about the computer and network; They should have enough practical experiences to deal with the problems occurring during the test properly and timely;
- 2) They must be familiar with every function of the test software, have a clear understanding of the operation process, and should know how to take advantage of the software to handle relevant problems (such as the operation of second login and the operation of changing the computer). During the test, no errors are allowed;
- 3) Since the number of examinees is increasing year after year, the batches of the test will surely increase. As a result, the workload for the technical staffs will inevitably increase. So the technical staffs are supposed to be hard-working, dedicated, and they should try their best to serve for the success of the test [8]. In addition, the invigilators are also required to be familiar with the operations of computer and to be capable to solve the common problems during the test.

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